STATISTICAL BULLETIN

METROPOLITAN LIFE INSURANCE COMPANY

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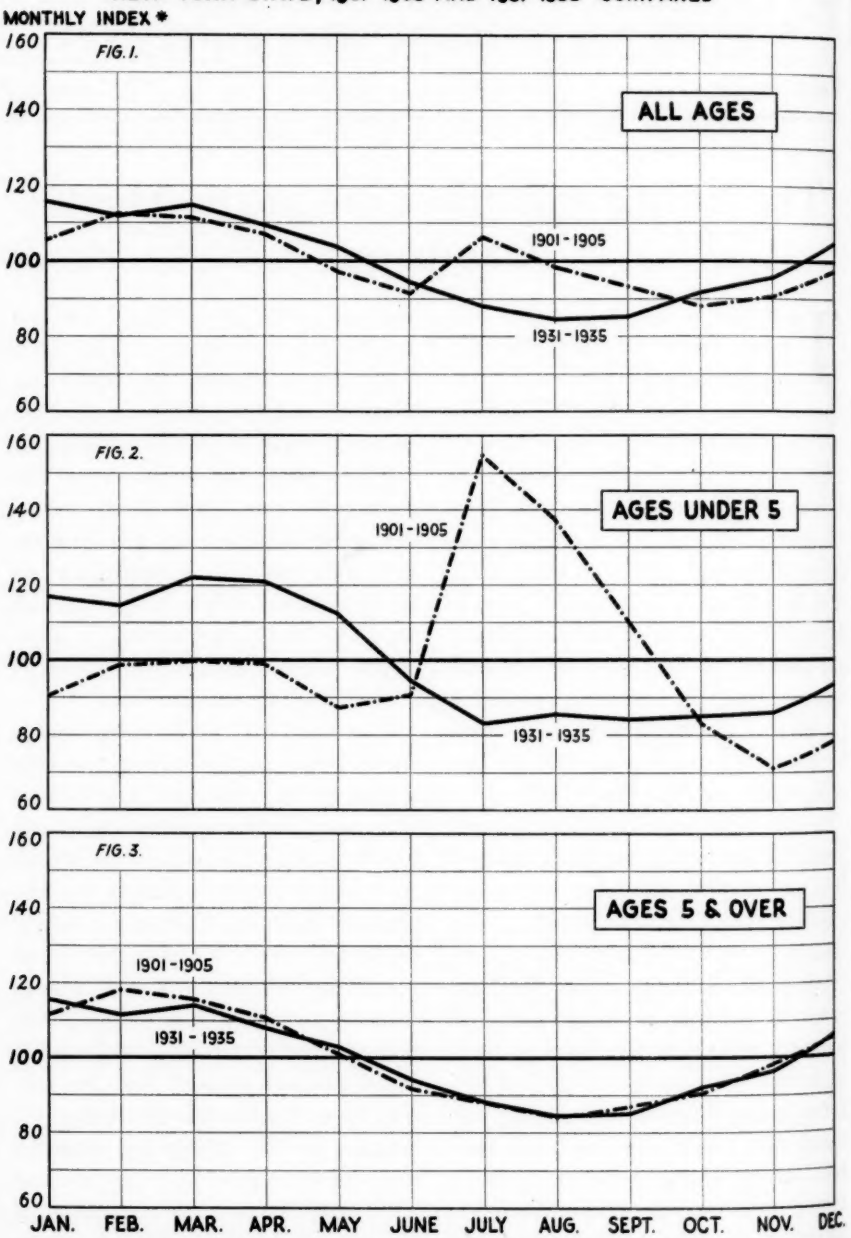
The Shifting Battle Line in the Health Campaign

THE battle line of a conquering army does not advance uniformly along the whole front. Our winning fight in the public health campaign is no exception to this rule. One graphic evidence of this is seen in the changing profile of the curve of monthly mortality rate from all causes of death combined, and for all ages, as drawn in Fig. 1. It is as if our attack had forced back the enemy in the "sector" of the summer months, and it now remains for us to launch a determined drive to make him draw in his lines in the cold season of the year.

In the summer months of bygone years the death rate ran high, mainly because of the slaughter of young children by intestinal diseases. This onslaught we have learned to hold in check with such good effect that the summer "salient" in the old curve of monthly mortality has been pushed in, and the corresponding part of the curve today is now a trough dipping below the yearly average. It has been largely through improved sanitary conditions, more particularly attention to pure milk and water supplies, and to the education of women in the proper care and feeding of their children that this success has been achieved. In particular, diarrhea and enteritis, once the chief cause of death in young children, has declined since the beginning of the century to one tenth of its former death rate. Large, but less striking, decreases are also reported for related diseases. Typhoid fever, which used to claim many victims, mainly in the summer months, has fallen to almost neglible proportions.

The crest of the monthly death curve today comes during the cold season of the year, and the vulnerable spot in the human organism, which is responsible for this winter crest in the curve, is mainly the respiratory system. Perhaps it might be said that the human race is not yet fully adapted to our winter climate. Since we cannot change the climate, and any biological progress in adaptation at best can be only very slow, we must seek to offer resistance to the enemy by devising weapons to counter his. The work of fashioning these new weapons is actively in progress; against pneumonia, serum treatment has well

MONTHLY VARIATION IN MORTALITY
NEW YORK STATE, 1901-1905 AND 1931-1935 COMPARED



* Five-year average of daily deaths in specified month, expressed as percentage of average daily deaths in each 5-year period as a whole.

passed the experimental stage, and even preventive vaccines bear promise of early success. Recent researches have also thrown helpful light on the causative agent of the common cold.

We have then every reason to concentrate our efforts on this part of the campaign. Under current conditions more persons die in each of the first three months of the year than in any other single month, as shown by statistics for the United States over the five-year period 1931 to 1935. These are the months that take heavy toll through the respiratory diseases—pneumonia, influenza, bronchitis, pleurisy, and others. Along with the respiratory diseases, these winter months also bear heavily on old persons suffering from chronic diseases of the heart and kidneys and from other conditions associated with advancing age.

During the five-year period 1931 to 1935, the monthly death rate in the United States was highest in February, being 12.9 percent above the average for all months. A close second was January with a rate 12.4 percent in excess of the average, and then came March which was 11.8 percent above average. In contrast to these danger months, August, now the most healthful month of the year, has a death rate 13.2 percent *below* the average for all months.

If we wish to compare in any degree of detail the situation as just presented for the years 1931 to 1935 with the corresponding conditions 30 or 35 years ago, we are forced to use a restricted area, because statistics for the United States as a whole over that long range of years are not available in the required detail. New York State is here selected for the purpose of this comparison, since the general picture in that area is essentially representative and may be used to illustrate the changes that have occurred since the beginning of the present century. It is on the basis of these New York data that the curves shown in Fig. 1, already referred to, have been drawn.

Figs. 2 and 3 on page 2 illustrate further some of the points that were made in the opening paragraphs. It has been noted that the abolition of the summer crest in the curve was due mainly to the preservation of infants and young children who formerly died in great numbers from intestinal diseases. If the data are plotted separately for certain age groups, this situation shows itself very clearly, as in Figs. 2 and 3. It is the curve of monthly death rates for children under 5 which has undergone a radical change by the disappearance of the summer crest. At ages 5 and over, the change is much less spectacular. At these older ages, even 30 years ago, the summer was a time of minimum, not maximum, death rate, and the essential change that has taken place is that in both summer and winter there has been a diminution of death rates.

The main lesson of these observations is that one of the leading public health problems for some time to come will be to reduce the mortality from those diseases that make the winter months the hazardous season

of the year. Prominent among winter ills are colds, influenza, pneumonia, pleurisy, and other respiratory diseases. Many of these conditions can be avoided, or death from the more serious cases prevented, if the physician is called early in the course of the disease. The medical forces in many communities are actively developing and pushing plans to combat the inroads of pneumonia and influenza which together took more than 150,000 lives in this country as recently as 1936, even under our present greatly improved conditions. We may reasonably expect, in the years just ahead of us, to witness a further change in the contour of the seasonal death curve, bringing the high winter rates more nearly in line with the average death rates of the year.

More Than 173 Millions Paid in Death Claims to Metropolitan Beneficiaries During 1937

BENEFICIARIES of Metropolitan policies received more than $173,000,000 in payment of death claims by the Company during 1937. This exceeds the amount disbursed 10 years ago by 72 percent. This large increase may be regarded as a measure of the added protection through Life insurance which the population of this country is enjoying today.

This increase in protection shows itself again, item by item, when we consider individual causes of death separately. For the 14th year in succession more money was paid out for deaths from organic heart disease than for any other cause of death. The huge sum so disbursed last year ($29,500,000, in round numbers) represents 17 percent, or more than one sixth of the total death claim payments of the Company. The percent of the total paid out year by year for deaths from cardiac conditions has been increasing almost continuously. Both physicians and public health workers know that a good share of the heart disease cases which result fatally year after year could be prevented or postponed, namely those of chronic endocarditis, which have their origin, very often, in the infectious diseases of childhood, in acute rheumatism, and in syphilis. Good progress has been made in the prevention of these conditions and their cardiac sequelae.

For the first time we shall, this year, list also in this review the claims arising from diseases of the coronary arteries and from angina pectoris, conditions which have attained greatly increased importance in recent years. These are here bracketed together because, in many cases, no clear lines of demarcation can be drawn, and angina pectoris is often symptomatic of coronary disease. Deaths from this group of causes resulted in claims to the amount of more than $17,000,000 in 1937, or practically 10 percent of the total claim payments, which places it fourth in rank.

The average amount of claims due

to these diseases runs high. For, on the one hand, males, who on an average are more heavily insured than females, are also more subject to these diseases. On the other hand, this group of conditions is more often diagnosed among the economically more favored classes who have the benefit of highly skilled medical attention.

In addition to the death claim disbursements on account of cardiac diseases, close to $21,000,000 was paid out in 1937 for two nearly related conditions, chronic nephritis and cerebral hemorrhage. These diseases often occur concurrently with heart disease. Thus the four principal cardiovascular-renal impairments combined were responsible for about $40 out of every $100 disbursed for all death claims last year.

Cancer ranked second in importance among all the causes of death and accounted for nearly 12 percent of all the money paid out in death claims. Ten years ago it was responsible for a little more than 9 percent. It is interesting to note also that in 1927 the Company disbursed more money on account of tuberculosis than on account of cancer, whereas in 1937 disbursements for cancer totaled two and one third times those for tuberculosis.

Examination of the table on page 6 will show that violent deaths, and accidents in particular, are extremely important items in the budgets of the Life insurance companies. The Metropolitan paid out nearly $18,000,000 last year for deaths from all types of accident combined, or slightly more than 10 percent of all death claim payments. Accidents ranked third in this respect among the causes of death.

Influenza and pneumonia, considered jointly, are charged with 1/12th of all the money paid out in death claims. Pneumonia, considered separately, was responsible for 1/16th of the total. With the further development and more widespread use of serum therapy, we are encouraged to expect that the mortality from pneumonia will be materially reduced in the next few years, and that this disease will take a much lower rank for money disbursed by the Life insurance companies.

Tuberculosis ranked eighth, with claim payments of $8,720,000. Tuberculosis is an outstanding example of a disease that is yielding steadily to an efficiently organized and administered movement for control. This is brought out clearly in the accompanying table by the figures both for percent distribution of money disbursed and for the actual sums paid in death claims, now and 10 years ago. Within that period the percent paid out has dropped from 10.3 to 5.0, and the actual sum disbursed in 1937 was lower than in 1927 by nearly $1,700,000, despite the fact that lives of policyholders exposed to risk have increased within these years by more than 4,000,000.

Death claim payments on account of diseases of the puerperal state were responsible for only 0.5 percent of the total in 1937, whereas 10 years

previously they accounted for 1.4 percent. The actual sum paid out has been reduced in 10 years by more than 35 percent. These declines are due in part to the declining birth rate; but the education of women in personal hygiene and the supervision of midwifery, together with improved prenatal and postnatal nursing care have been important factors in reducing both the puerperal death rate and the proportion of death claim disbursements for these diseases.

A significant item in the table is a considerable reduction in the proportion of money paid out on account of deaths from appendicitis. The death rate from this disease has been showing a declining trend among Metro-

Amounts Disbursed on Account of Deaths from Specified Diseases and Conditions. Entire Experience of Metropolitan Life Insurance Company. All Ages. 1937 and 1927 Compared.

Diseases and Conditions	Amount		Percent of Total	
	1937	1927	1937	1927
All Causes of Death	$173,062,771*	$100,776,031*	100.0	100.0
Typhoid fever	182,512	531,220	.1	.5
Diphtheria	97,549	207,470	.1	.2
Influenza and pneumonia	14,154,537	9,033,011	8.2	9.0
Influenza	3,249,916	1,833,898	1.9	1.8
Pneumonia	10,904,621	7,199,113	6.3	7.2
Tuberculosis—all forms	8,720,203	10,398,936	5.0	10.3
Tuberculosis of the respiratory system	8,018,814	9,591,678	4.6	9.5
Cancer—all forms	20,404,284	9,453,693	11.8	9.4
Diabetes mellitus	4,499,296	1,807,781	2.6	1.8
Cerebral hemorrhage; apoplexy	10,986,316†	6,140,254	6.4	6.1
Diseases of the heart‡	29,468,877	14,602,934	17.0	14.5
Coronary diseases; angina pectoris	17,050,528	¶	9.8	¶
Appendicitis	3,341,067	2,336,862	1.9	2.3
Chronic nephritis (Bright's disease)	9,940,487	7,694,504	5.8	7.6
Puerperal state—total	895,419	1,384,435	.5	1.4
Total external causes	23,275,735§	13,254,770	13.4	13.2
Suicides	4,051,081	2,199,557	2.3	2.2
Homicides	1,350,165§	1,178,493	.8	1.2
Accidents—total	17,874,489§	9,876,720	10.3	9.8
Accidental drowning	1,435,871	1,116,932	.8	1.1
Traumatism by fall	2,946,523	1,076,903	1.7	1.1
Railroad accidents	899,091	871,968	.5	.9
Automobile accidents	7,695,079	2,627,269	4.5	2.6
All other accidents	4,897,925	4,183,648	2.8	4.1
All other diseases and conditions	30,045,961	23,930,161	17.4	23.7

*Includes reinsurance received from other companies, $214,920 in 1937 and $505,856 in 1927.

†Not strictly comparable with the figure for 1927, owing to changes in classification procedure.

‡Excludes pericarditis, acute endocarditis, acute myocarditis, coronary artery diseases, and angina pectoris.

§Not strictly comparable with the figure for 1927. Since 1928 the Company has extended to Industrial policyholders a double indemnity accidental death benefit without extra premium. Additional accidental death benefits for 1937 totaled $4,842,095, of which $3,203,685 was paid on Industrial policies.

¶Not available.

politan policyholders, due largely, we believe, to improvement in surgical technique and to the fact that appendicitis cases in recent years have been coming to operation earlier than they did a decade ago.

The figures for two diseases, typhoid fever and diphtheria, are given in the accompanying table, merely to show how relatively unimportant they have become under modern conditions. Even 10 years ago they were very minor items, and in these 10 years the death rates for both have been reduced by more than 80 percent. These two diseases are outstanding examples of the progress that has been made in the application of public health methods in the saving of life.

A 26-Year Record of Occupational Fatalities

THE means by which men seek to earn money to sustain life unfortunately often become the means by which they lose their life. One recent estimate places the number of deaths from accidents arising out of and in the course of employment at 19,000 in 1937, or 1,000 more than the estimate for 1936. The true total, it may surprise many to learn, cannot be known because, in spite of the obvious value of such information, death certificates filed in many State offices fail to supply the information needed to determine whether an accident occurred in the home, on a public highway, or in industry. Only in the last few years have a large enough number of States reported this information with sufficient completeness to make possible even a rough estimate of the national toll of fatal occupational accidents.

As a consequence of this lack of data, we cannot determine whether the Nation's business is carried on today at a relatively higher or at a lower cost in human lives than it was in the past. Remarkable reductions in occupational deaths and injuries achieved by many industrial companies and, in fact, by whole industries, have been discussed widely and have led to the general belief that the cost is much lower today. It does not necessarily follow, however, that these notable achievements have cut down the grand total. New industries with greater hazards may have taken the place of old industries where the hazards have been overcome. The mechanization of industry may have had an adverse influence. Changes in transportation methods may have materially affected the incidence of occupational injuries in that important field.

Fortunately, there are available records for adult white male policyholders of the Metropolitan Life Insurance Company covering a period of 26 years which throw some light on what the general trend in the incidence of occupational fatalities has been. During the entire period, in this series of observations, deaths resulting from occupational causes have been distinguished from nonoccupational deaths. Since the group

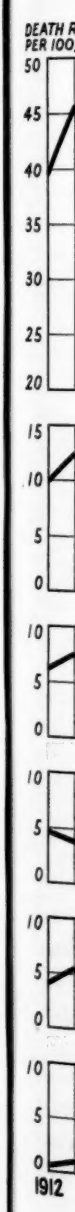
is composed mostly of urban wage-earners, the results are not influenced greatly by trends among agricultural workers.

A study of the accompanying chart, which shows the trend in the rates for total occupational accidents and for the principal types of these accidents, for the period, reveals that the general trend of mortality has been downward, but the decline has not been continuous. The curve of the accidental death rate fluctuated in a general way with the curve of employment and of business activity. In 1912, the first year for which records are available, the death rate was 39.6 per 100,000, after which it rose in 1913 to 45.7 per 100,000, the highest rate for the entire period. A drop in mortality between 1913 and 1915 was consistent with a decrease in industrial activity. Beginning with 1916, acceleration of industrial activity incidental to the World War brought with it a sharp increase in fatal occupational accidents. In the years immediately following the close of hostilities, a period of economic readjustment, the mortality dropped sharply, reaching a low point in 1921, a year of industrial depression. With renewal of business activity in 1922 and 1923 the accident rate rose to the high figure of 40.1 per 100,000 in the latter year. Between 1924 and 1929 the rate stayed at a constant but high level of about 35 deaths per 100,000, with the exception of a drop to 30.4 deaths per 100,000 in 1928. In the four years 1930 through 1933 the trend of the accidental death rate, reflecting widespread unemployment, showed a definite downward movement, reaching the lowest point in the entire series, 21.2 deaths per 100,000, in 1933. With an increase in business activity in 1934 the rate rose slightly, and since that year it has varied between 22 and 26 deaths per 100,000. Last year the rate was 22.8 deaths per 100,000, a lower figure than for any year except 1933 and 1935.

Steam railroad accidents showed the greatest change in the occupational accident death rate during the 26-year period. In 1912 the rate was 9.9 per 100,000, and in 1913, 12.5 per 100,000 as compared with a rate of 2.0 per 100,000 in 1937. This decline undoubtedly reflects in part the falling off in steam railroad traffic, but so great an improvement must be credited largely to the very extensive campaign carried on by the railroad companies to reduce accidents among their employees.

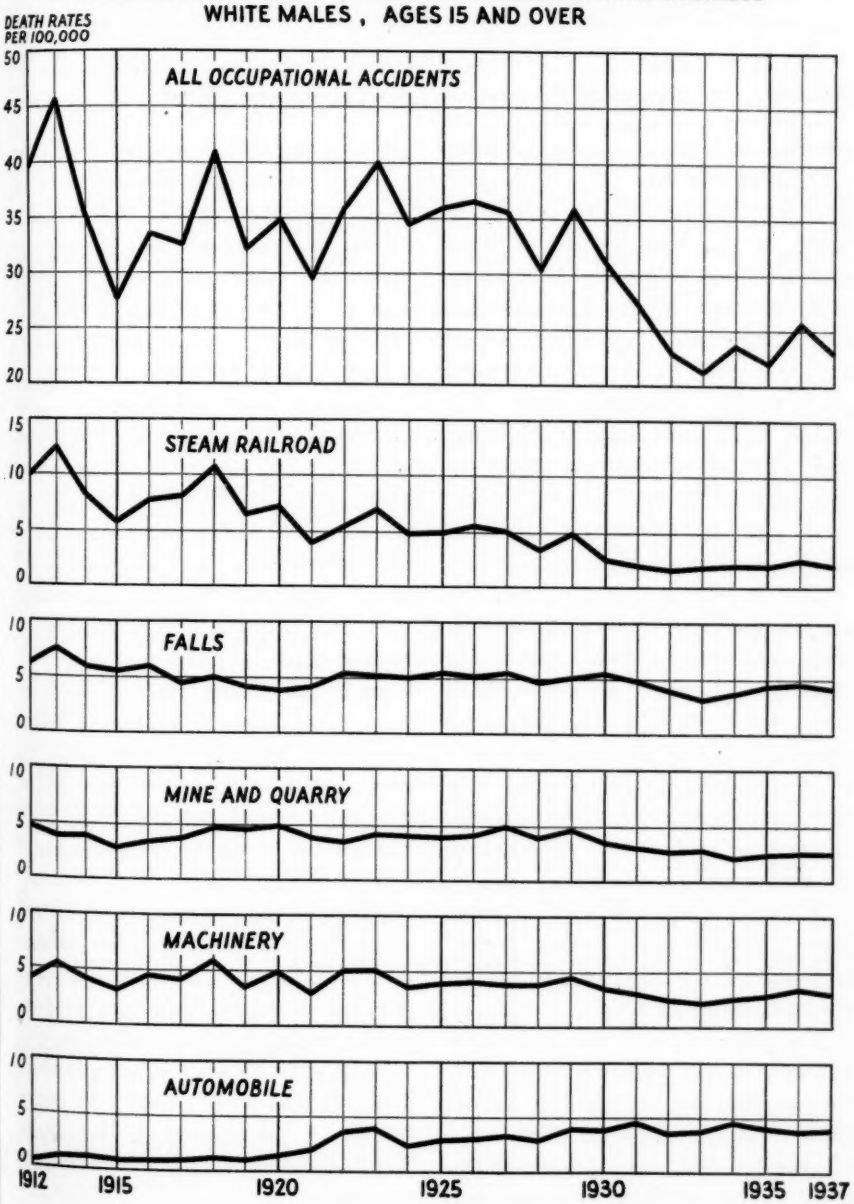
Falls, now the leading cause of occupational fatalities, fluctuate with activities in the building industry, and have occurred at a rate varying between 3.1 per 100,000 in 1933 and 7.6 per 100,000 in 1913. The relatively low level of building activity in recent years is reflected in low rates prevailing from 1932 to 1937. Accidents due to machinery have varied between 2.2 in 1933 and 5.8 per 100,000 in 1918. Occupational automobile accidents* rose more or less steadily from 0.5 in 1912 to 4.6 deaths per 100,000 in 1931, and have

*The figures here cited do not include collisions with railroad trains or streetcars.



MORTALITY TRENDS FROM IMPORTANT TYPES OF OCCUPATIONAL ACCIDENTS

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT, WEEKLY PREMIUM PAYING BUSINESS
WHITE MALES, AGES 15 AND OVER



varied within the limits of 3.6 and 4.5 in recent years.

Despite the wide variations in the rates previously noted reflecting, as they do, business activity, the chart indicates that the vast amount of money and effort expended to reduce occupational accidents has enabled industrial organizations to carry on their operations at relatively lower cost in human life today than at any time in the past.

Health Record for January 1938

THE lowest death rate ever recorded for any January, namely 8.5 per 1,000, was registered in the first month of 1938 among the 17,700,000 Industrial policyholders of the Metropolitan Life Insurance Company. It is thus apparent that the unprecedentedly good health conditions which prevailed throughout the spring, summer, and fall of 1937 are still continuing into the current year, in this large cross-section of the American and Canadian population.

This excellent report for the Industrial policyholders of the Metropolitan conforms closely with the combined mortality data from all of the large Industrial life insurance companies. For the first six weeks of 1938 these companies paid only 10.0 death claims per 1,000 policies in force, as against 11.5 per 1,000 in the corresponding period a year ago.

In Canada also, among the more than 1,250,000 Metropolitan Industrial policyholders, the year 1938 has thus far bettered 1937.

The contrast with the record for January a year ago is enhanced by the fact that last year, at this season, there was an important influenza epidemic, and, along with many deaths reported from influenza and pneumonia, the mortality from the chronic diseases was unusually high. In consequence, the January death rate a year ago was the highest in several years, while, on the contrary, for the first month of the current year, it is at a new minimal figure, as already noted.

There is good evidence that the death rate in the general population of the country also is much lower this year than last. For example, up to the end of the sixth week of 1938 there were only 54,514 deaths in 86 large American cities as compared with 65,052 deaths in the same cities in the same weeks of 1937. The cumulative death rate in Greater New York, up to February 12th, showed a decline of more than 16 percent from the figure registered for the same period last year.

For each of the principal causes of death individually, the January record among the insured is better than that for January 1937. Some of the declines in the death rate, expressed in round numbers as percents, are as follows: influenza, 61; tuberculosis, 18; cancer, 4; diabetes, 10; cerebral hemorrhage, 5; heart disease, 4; pneumonia, 37; accidents (all forms combined), 8; automobile fatalities, 13.

The following table shows the mortality among Industrial policyholders for January 1938, December 1937, and January 1937, together with the death rates for the years 1937 and 1936.

METROPOLITAN LIFE INSURANCE COMPANY

Death Rate per 100,000 for Principal Causes. Weekly Premium-Paying Business in Industrial Department. All Ages (Annual Basis)*

MONTHS OF JANUARY 1938, DECEMBER 1937, AND JANUARY 1937

CAUSES OF DEATH	ANNUAL RATE PER 100,000 LIVES EXPOSED*				
	January 1938	December 1937	January 1937	YEAR	
				1937	1936
TOTAL—ALL CAUSES	851.6	744.8	970.7	822.1	839.8
Typhoid fever	.8	.9	.4	.9	1.0
Measles	1.9	.7	.9	1.0	.9
Scarlet fever	1.8	1.4	2.4	1.6	2.1
Whooping cough	1.7	1.6	1.9	3.0	1.7
Diphtheria	3.1	2.8	3.4	1.9	1.8
Influenza	14.0	9.7	36.3	18.0	14.7
Tuberculosis (all forms)	43.4	41.1	53.1	51.3	54.3
Tuberculosis of respiratory system	40.6	37.3	48.0	46.0	48.5
Syphilis, locomotor ataxia, and general paralysis of the insane	11.7	10.4	11.4	11.1	11.7
Cancer (all forms)	92.8	86.5	96.7	94.1	93.9
Diabetes mellitus	27.5	22.6	30.4	25.0	24.7
Cerebral hemorrhage; apoplexy	64.3	58.4	67.6	59.0	61.9
Diseases of the heart†	166.7	141.3	173.8	157.0	161.0
Diseases of the coronary arteries	34.4	28.1	35.4	30.1	25.4
Angina pectoris	7.6	6.5	10.5	7.7	8.6
Pneumonia (all forms)	81.0	61.5	127.6	66.3	69.8
Diarrhea and enteritis	6.0	5.5	5.6	8.8	8.5
Appendicitis	9.4	8.2	9.6	11.0	11.4
Chronic nephritis (Bright's disease)	58.8	48.9	59.0	54.6	59.4
Puerperal state—total	6.1	5.6	5.8	6.8	7.7
Suicides	7.4	6.6	7.9	8.8	8.9
Homicides	4.7	3.8	5.1	4.7	5.0
Accidents—total	52.3	49.8	57.0	53.6	57.7
Automobile accidents	21.3	19.2	24.5	20.9	20.1
All other diseases and conditions	154.0	142.8	168.7	145.7	147.6

*The rates for 1937 and 1938 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

†Excludes pericarditis, acute endocarditis, acute myocarditis, coronary artery diseases, and angina pectoris.

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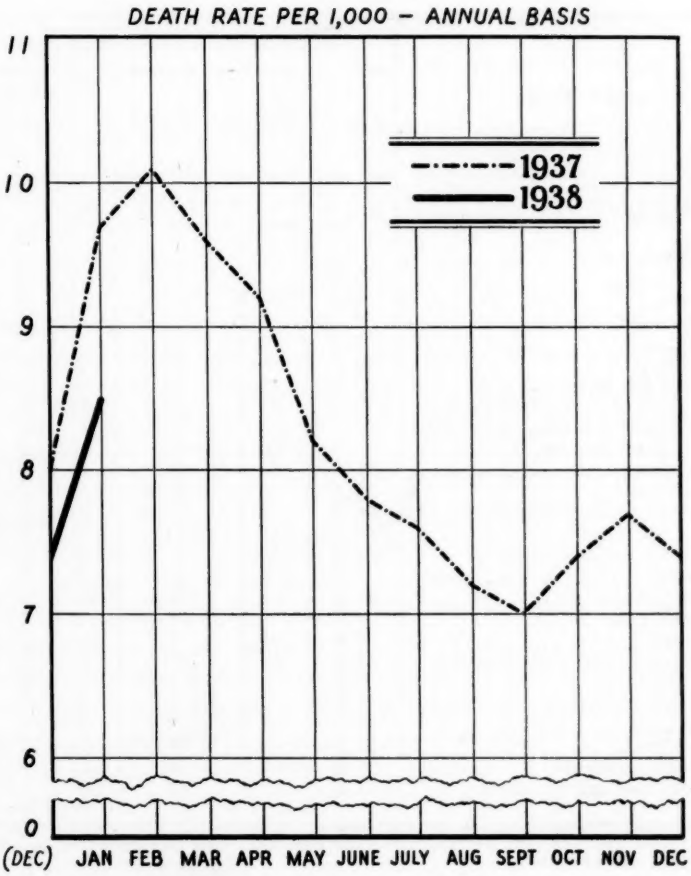
DEATH RATES FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT
WEEKLY PREMIUM-PAYING BUSINESS – TOTAL PERSONS



Rates are provisional

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